COMMONWEALTH of VIRGINIA

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COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Southwest Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Consolidated Glass & Mirror Corporation
110 Jack Guynn Drive - Galax, Virginia
Permit No. SWRO11085

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Consolidated Glass & Mirror Corporation has applied for a renewal to the Title V Operating Permit for its Plant No. 2 facility located at 110 Jack Guynn Drive in Galax, Virginia. The Department has reviewed the application and has prepared a proposed Title V Operating Permit.

Permit Contact: Robert T. Lowe Date: 3/14/17
Robert Lowe
(276) 676-4863

Air Permit Manager: _____ Date: 3/14/17
Rob Feagins

Regional Director: _____ Date: 3/15/2017
Jeffrey Hurst

FACILITY INFORMATION

Permittee
Consolidated Glass & Mirror Corporation
Plant No. 2
110 Jack Guynn Drive
Galax, VA 24333

County-Plant I.D.No. 51-640-00067

SOURCE DESCRIPTION

NAICS 327215 – Glass Product Manufacturing Made of Purchased Glass (SIC 3231)

Consolidated Glass & Mirror Corporation (CG&M) manufactures mirrors at their Plant No. 2 facility located at 110 Jack Guynn Drive, in Galax, Virginia. Large sheets of glass are loaded onto the silver line where they are transformed into mirrors on a continuous conveyor line. The glass sheets are cleaned by automated rotating brushes and tap water. The surface of the glass is lightly etched with cerium oxide and rinsed with deionized water. The cerium oxide roughens the surface of the glass and improves chemical adhesion. A tin sensitizer solution is applied just prior to the silver solution to chemically bond the reflective silver to the glass. A copper solution is then applied to improve the adhesion of the mirror backing paint (applied in a later step) to the reflective coating surface. The mirrors are again rinsed with deionized water and then heated in an electric oven. The mirrors then pass through a continuously flowing curtain of paint at the curtain coater. This backing paint is applied over the reflective metals to protect them from environmental conditions (moisture). The viscosity of the backing paint is constantly monitored and additional solvent is added as needed. The mirror backing paint application process is responsible for the majority of the VOC emissions from the facility.

After exiting the curtain coater, the mirrors are dried in a series of infrared ovens that enclose a section of the conveyor line. The mirrors are allowed to cool slightly before entering the rotogravure, which applies an ultra-violet (UV) coating over the backing paint to protect and improve its durability. UV light is used to cure the UV coating. The mirrors are then unloaded from the conveyor line and inspected for flaws. The mirrors may then be sent directly to shipping or to any of the various cutting, grinding, beveling, sealing, and/or framing operations at the facility.

The facility is a Title V major source of VOC, xylene, ethyl benzene, and total hazardous air pollutant (HAP) emissions. This source is located in an attainment area for all criteria pollutants. The facility is currently permitted under a minor NSR Permit issued on May 22, 2012.

Compliance Assurance Monitoring (CAM) requirements (40 CFR 64) are not applicable to this facility since there are no pollution control devices associated with the emission units.

COMPLIANCE STATUS

The facility is inspected at least once every two years. There are no outstanding compliance issues.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment (all propane-fired)							
3.A	3.A	Ace Buchler model B11E boiler	1.06 mmBtu/hr	-	-	-	NSR permit issued May 22, 2012
3.B	n/a	1 - Cox Radiant 100-6 space heater	0.15 mmBtu/hr	-	-	-	
3.C	n/a	1 - Carrier 48 HD008-6 space heater	0.203 m4mBtu/hr	-	-	-	
3.D	n/a	40 - Cox Radiant 125 - 6 space heaters	0.125 mmBtu/hr each	-	-	-	
3.E	3.05	Weben-Jarco AJH-CN35 water heater (1989)	0.35 mmBtu/hr	-	-	-	
3.F	3.06	Weben-Jarco AJH-CN50 water heater (1989)	0.5 mmBtu/hr	-	-	-	
3.G	3.07	Weben-Jarco AJH-CN70 water heater (1989)	0.7 mmBtu/hr	-	-	-	
3.H	3.08	Weben-Jarco AJH-CN97 water heater (1989)	0.97 mmBtu/hr	-	-	-	
3.I	3.09	Farleys GEM-4SLP water heater	0.44 mmBtu/hr	-	-	-	
3J	-	Generac Emergency Generator – manufactured 11/29/07	0.53 mmBtu/hr (208 hp)	-	-	-	-

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
1.A	2,3,4	Sommer and Maca mirror backing paint curtain coater	40 gpm	-	-	-	NSR permit issued May 22, 2012
Rotogravure UV Process							
1.B	1.C	Sommer and Maca rotogravure UV roll coater	7 lbs./hr	-	-	-	NSR permit issued May 22, 2012
Glass Cutting							
2	-	Lubricant for Bystronic Glass Cutting Machine	2 lbs./hr	-	-	-	NSR permit issued May 22, 2012
Glass Grinding & Beveling							
4	-	Coolant for glass grinding & beveling operations	200 gal/wk	-	-	-	NSR permit issued May 22, 2012
Polyurethane sealing system							
5	-	Polyurethane sealant application system	50 lbs/hr	-	-	-	NSR permit issued May 22, 2012

EMISSIONS INVENTORY

The 2015 annual emissions are summarized in the following tables:

All Emission Units	2015 Criteria Pollutant Emissions (Tons/Year)				
	VOC	CO	SO_2	PM_{10}	NO_x
Total	67.32	0.07	0.03	0.04	0.26

All Emission Units	2015 Hazardous Air Pollutant Emissions (Tons/Year)		
	Ethylbenzene	Formaldehyde	Xylene
Total	0.00	0.00	0.40

EMISSION UNIT APPLICABLE REQUIREMENTS

Boiler, Space Heaters & Water Heaters (Unit ID No. 3):

Limitations (Emission ID Nos. 3A, 3B, 3C, 3D, 3E, 3F, 3G, 3H, and 3I):
The following limitations are State BACT requirements from Conditions 2 and 16 of the Minor NSR Permit issued on May 22, 2012:

- Condition 2, limiting the approved combustion fuel to propane.
- Condition 16 limiting PM and PM-10 emissions to 0.14 pounds per hour and 0.60 tons per year; SO_2 emissions to 0.18 pounds per hour and 0.80 tons per year; NO_X emissions to 1.08 pounds per hour and 4.73 tons per year; CO emissions to 0.27 pounds per hour and 1.20 tons per year; and, VOC emissions to 0.05 pounds per hour and 0.24 tons per year.

9 VAC 5 Chapter 50, Part II, Article 1, *Standards of Performance for Visible Emissions and Fugitive Dust/Emissions* are applicable to each source of visible emissions and each source of fugitive dust/emissions. Since the fuel burning equipment may exhibit visible emissions, the specific opacity limits of 9 VAC 5-50-80 apply:

- Visible emissions shall not exceed 20% opacity, except for one six-minute period in any hour of not more than 30% opacity.

However, since the propane-fired equipment would never be expected to exceed 20% opacity during normal operations, the 20/30% opacity limit listed in the *Facility-Wide Limitations* section will be sufficient.

Limitations (Emission ID No. 3J)

The Generac emergency generator (ID# 3J) has a propane-fueled, spark ignition stationary reciprocating internal combustion engine (RICE) driving an emergency electrical generator. Because the engine was manufactured in 2007, it is not subject to regulatory requirements of 40CFR60, Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal

Combustion Engines (ICE). However, the engine is located at a source that is a major hazardous air pollutant emitter, so the RICE is subject to 40CFR63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Sources. When the engine is operated as an emergency stationary RICE, as defined in 40CFR63.6675, and complies with the requirements of 40CFR63.6640(f), the other regulatory requirements of Subpart ZZZZ are not applicable to the engine. However, if the engine is not operated as an emergency unit as defined in Subpart ZZZZ, then the source may be subject to all other applicable requirements for non-emergency engines.

In May 2015, the US Court of Appeals for the DC Circuit vacated the emergency demand response provisions of 40CFR63.6640(f)(2), so the requirements of 40CFR63.6640(f), which the source must meet to be considered an emergency unit, are:

- any operation of the unit for purposes other than emergencies, maintenance and testing is limited to 50 hours per year (40CFR63.6640(f));
- no limit on operation for emergency purposes 40CFR63.6650(f)(1)); and
- the 50 hours per year of non-emergency operation cannot be used for peak shaving or to generate income for the facility, except in specific circumstances identified in 40CFR63.6640(f)(3) and (f)(4).

Monitoring & Recordkeeping:
As required in Condition 17 of the Minor NSR Permit issued on May 22, 2012, CG&M will monitor and record on a monthly basis, the combined annual consumption of propane in the space heaters, water heaters, and boiler. The exclusive use of propane in the fuel-burning equipment will be used to show compliance with the 20%/30% opacity limits.

The following emission factors will be used to show compliance with the emission limits listed in Condition 16 of NSR permit issued on May 22, 2012:

Regulated Pollutant	Emission Factors (lbs/1000 gal propane)		Limitation / Standard	
	Space Heaters	Boiler	lb/hr	tons/yr
PM	1.85	0.26	0.14	0.60
PM-10	1.85	0.26	0.14	0.60
SO_2	1.60	1.60	0.18	0.80
NO_X	7.50	12.40	1.08	4.73
CO	1.95	3.10	0.27	1.20
VOC	0.50	0.47	0.05	0.24

Emission limits are based on 8760 hr/yr operation. Space heater emission factors obtained from SCC 10500110. Boiler emission factors obtained from SCC 10201002 and 10301002.

Testing:
The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or

standard.

Reporting: see Facility Wide Conditions

Streamlined Requirements:
There are no streamlined requirements for the propane-fired space heaters, water heaters, and boiler.

Curtain Coater (Unit ID No. 1A)

Limitations:
The following limitations are State BACT requirements from Conditions 4, 6, and 12 of the Minor NSR Permit issued on May 22, 2012:

- Condition 4, limiting consumption of reducer in the curtain coater mirror back painting operation to 24.0 pounds per hour and 48.3 tons per year.
- Condition 5, limiting curtain coater mirror back paint consumption to 100 lbs/hr and 850 lbs/yr. The maximum VOC content in the approved paint is 52.63% by weight.
- Condition 6, limiting curtain coater mirror back paint consumption to 177.9 pounds per hour and 391.0 tons per year. The maximum VOC content in the approved paints is 44.57% by weight.
- Condition 12, limiting annual VOC emissions to 103.29 pounds per hour and 222.57 tons per year.

Monitoring & Recordkeeping:
As required in Condition 17 of the Minor NSR Permit issued on May 22, 2012, CG&M will monitor and record on a monthly basis, the weight of mirror backing paint and reducer consumed and the VOC throughput. Hourly, monthly and annual VOC emissions will be calculated and recorded. Hourly VOC emissions will be calculated by dividing monthly emissions by monthly hours of operation.

Testing:
The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Reporting:
Compliance with the curtain coater VOC emission limits listed in Condition 12 of the NSR permit issued May 22, 2012, will be demonstrated through emission calculations. These emission calculations will be based on 100% of the VOC in the mirror backing paint (as applied) being emitted to the atmosphere. The VOC content of each paint and reducer (per the product MSDS) multiplied by the corresponding quantity of each coating applied will be used to determine the monthly VOC emissions from the curtain coater. Hourly emissions will be determined by dividing the monthly VOC total by the hours of curtain coater operation.

Streamlined Requirements:
There are no streamlined requirements for the curtain coater mirror back painting operation.

Rotogravure UV Coating Process (Unit ID No. 1B)

Limitations:
The following limitations are State BACT requirements from Conditions 7 and 13 of the Minor NSR Permit issued on May 22, 2012:

- Condition 7, limiting rotogravure coating consumption to 25 pounds per hour and 73 tons per year.
- Condition 13, limiting annual VOC emissions from the rotogravure coating process to 2.75 pounds per hour and 8.03 tons per year.

Monitoring & Recordkeeping:
As required in Condition 17 of the Minor NSR Permit issued on May 22, 2012, CG&M will monitor and record on a monthly basis, the weight of coatings consumed in the rotogravure and the VOC throughput. Hourly, monthly and annual VOC emissions will be calculated and recorded. Hourly VOC emissions will be calculated by dividing monthly emissions by monthly hours of operation.

Testing:
The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Reporting:
Compliance with the rotogravure UV coating process VOC emission limits listed in Condition 13 of the NSR permit issued May 22, 2012, will be demonstrated through emission calculations. These emission calculations will be based on 100% of the VOC in the UV coating being emitted to the atmosphere. The VOC content of each coating (per the product MSDS) multiplied by the corresponding quantity of that coating applied will be used to determine the monthly VOC emissions from the rotogravure. Hourly emissions will be determined by dividing the monthly VOC total by the hours of rotogravure operation.

Streamlined Requirements:
There are no streamlined requirements for the rotogravure UV coating application operation.

Applicability of 40CFR63, Subpart KK – National Emission Standards for the Printing and Publishing Industry

Subpart KK is not applicable for the following reasons:

The provisions of 40CFR63.820(a)(1) are not applicable since the rotogravure equipment at Consolidated Glass & Mirror (CG&M) is used for purposes other than for printing and publication. The CG&M rotogravure equipment applies an ultraviolet (UV) coating over the backing paint on each mirror for product performance purposes and to protect and improve its durability. The printing operation defined in 40CFR63.822 does not apply to the CG&M rotogravure equipment.

Glass Cutting Operations (Unit ID No. 2)

Limitations:
The following limitations are State BACT requirements from Conditions 8 and 14 of the Minor NSR Permit issued on May 22, 2012:

- Condition 8, limiting mineral spirits (or equivalent volatile lubricant) consumption to 65.0 pounds per hour and 10.0 tons per year.
- Condition 14 limiting annual VOC emissions from the glass cutting operations to 65.00 pounds per hour and 10.00 tons per year.

Monitoring & Recordkeeping:
As required in Condition 17 of the Minor NSR Permit issued on May 22, 2012, CG&M will monitor and record on a monthly basis, the consumption of glass cutting lubricant. Hourly consumption will be calculated by dividing monthly consumption by monthly hours of operation.

Testing:
The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Reporting:
Compliance with the glass cutting lubricant VOC emission limits listed in Condition 14 of the NSR permit issued May 22, 2012, will be demonstrated through emission calculations. These emission calculations will be based on 100% of the VOC in the lubricant (mineral spirits or equivalent) being emitted to the atmosphere. The VOC content of each lubricant (per the product MSDS) multiplied by the corresponding quantity of that lubricant consumed will be used to determine the monthly VOC emissions from glass cutting. Hourly emissions will be determined by dividing the monthly VOC total by the hours of unit operation.

Streamlined Requirements:
There are no streamlined requirements for the glass cutting operations.

Glass Grinding & Beveling Coolant (Unit ID No. 4)

Limitations:
The following limitations are State BACT requirements from Conditions 9 and 15 of the Minor NSR Permit issued on May 22, 2012:

- Condition 9, limiting Quaker Microcut 106-C (or equivalent coolant) consumption to 13.9 pounds per hour and 50.0 tons per year.
- Condition 15, limiting annual VOC emissions from the glass grinding operations to 1.39 pounds per hour and 5.00 tons per year.

Monitoring & Recordkeeping:
As required in Condition 17 of the Minor NSR Permit issued on May 22, 2012, CG&M will monitor and record on a monthly basis, the consumption of glass grinding coolant. Hourly consumption will be calculated by dividing monthly consumption by monthly hours of operation.

Testing:
The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Reporting:
Compliance with the glass grinding coolant VOC emission limits listed in Condition 15 of the NSR permit issued May 22, 2012, will be demonstrated through emission calculations. These emission calculations will be based on 100% of the VOC in the coolant being emitted to the atmosphere. The VOC content of each lubricant (per the product MSDS) multiplied by the corresponding quantity of that lubricant consumed will be used to determine the monthly VOC emissions from the glass grinding coolant. Hourly emissions will be determined by dividing the monthly VOC total by the hours of unit operation.

Streamlined Requirements:

There are no streamlined requirements for the glass cutting operations.

Polyurethane Sealant Application Process (Unit ID No. 5)

Limitations:
The following limitations are State BACT requirements from Conditions 3 and 11 of the Minor NSR Permit issued on May 22, 2012:

- Condition 3, limiting 3M Polyurethane sealant 540 (or equivalent) consumption to 50.0 pounds per hour and 13.0 tons per year.
- Condition 11, limiting annual VOC emissions from the polyurethane sealant application process to 2.30 pounds per hour and 0.60 tons per year.

Monitoring & Recordkeeping:

As required in Condition 17 of the Minor NSR Permit issued on May 22, 2012, CG&M will monitor and record on a monthly basis, the consumption of 3M polyurethane sealant 540. Hourly consumption will be calculated by dividing monthly consumption by monthly hours of operation.

Testing:

The permit does not require source tests. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Reporting:
Compliance with the polyurethane sealant application process VOC emission limits listed in Condition 11 of the NSR permit issued May 22, 2012, will be demonstrated through emission calculations. These emission calculations will be based on 100% of the VOC being emitted to the atmosphere. The VOC content (per the MSDS) multiplied by the corresponding quantity of the sealant consumed will be used to determine the monthly VOC emissions from the sealant application process. Hourly emissions will be determined by dividing the monthly VOC total by the hours of unit operation.

Streamlined Requirements:

There are no streamlined requirements for the glass cutting operations.

FACILITY-WIDE REQUIREMENTS

Limitations:
The following limitation is a State BACT requirement from Condition 10 of the Minor NSR Permit issued on May 22, 2012:

- Condition 10, limiting the annual production of mirrors to 52 million square feet.

Monitoring & Recordkeeping:
As required in Condition 17 of the Minor NSR Permit issued on May 22, 2012, CG&M will monitor and record on a monthly basis, the annual throughput of mirrors, calculated as the sum of each consecutive twelve (12) month period.

Testing:
The permit does not require facility-wide source testing. The Department and EPA have authority to require testing not included in this permit, if necessary to determine compliance with an emission limit or standard.

Reporting:
Condition 18 of the NSR permit dated May 22, 2012, requires that the permittee notify the DEQ Director within four business hours after it is discovered if the permitted facility or related air pollution control equipment causes excess emissions for more than one hour. The owner must provide a written statement within 14 days explaining the problem, corrective actions taken, and the estimated duration of the malfunction.

Streamlined Requirements:
There are no facility-wide streamlined requirements.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9VAC5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
34	Muriatic Acid (regeneration of deionizers)	9 VAC 5-80-720 B	Hydrochloric Acid	-
52	Defoamer (Coolant Pit and Wastewater Treat ment)	9 VAC 5-80-720 B	VOC	-
56	Hydraulic Oil	9 VAC 5-80-720 B	VOC	-
57	Parts Washer	9 VAC 5-80-720 B	VOC	-

Emission Unit No.	Emission Unit Description	Citation	Pollutant Emitted (5-80-720 B.)	Rated Capacity (5-80-720 C.)
61	UV Ink (Printing on Mirror Back)	9 VAC 5-80-720 B	VOC	-
62	Rubber Adhesive (Attach particle board mirror backing)	9 VAC 5-80-720 B	VOC	-
64	Air conditioning unit for vinyl storage	9 VAC 5-80-720B	Chloro-difluoro-methane	-
65	Motor oil tank	9 VAC 5-80-720B	VOC	-
66	Used oil tank	9 VAC 5-80-720B	VOC	-

INAPPLICABLE REQUIREMENTS

The following are not applicable to this facility:

Citation	Title of Citation	Description of Applicability
40 CFR 64	Compliance Assurance Monitoring	-
40 CFR 63	MACT Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	Emission Unit 3A exempt per 40CFR63.7575, Definition of Hot Water Heater

GENERAL CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9VAC5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

Federal Enforceability

Article 1 (9 VAC 5-80-110 N) states that all terms and conditions in the Title V permit are enforceable by the administrator and citizens under the federal Clean Air Act, except those that have been designated as only state-enforceable.

Permit Expiration

This condition refers to the Board taking action on a permit application. The "Board" refers to the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.2-604 and §10.1-1185 of the *Code of Virginia,* and

the "Department of Environmental Quality Agency Policy Statement No. 2-09".

Failure / Malfunction Reporting

Section 9VAC5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9VAC5-20-180 is from the general regulations. All affected facilities are subject to section 9VAC5-20-180 including Title V facilities. A facility may make a single report that meets the requirements of 9VAC5-20-180. The report must be made within four daytime business hours of discovery of the malfunction.

Permit Modification

This general condition cites the sections that follow:
9VAC5-80-50. Applicability, Federal Operating Permit for Stationary Sources
9VAC5-80-190. Changes to Permits
9VAC5-80-260. Enforcement
9VAC5-80-1100. Applicability, Permits For New and Modified Stationary Sources
9VAC5-80-1605. Applicability, Permits For Major Stationary Sources and Modifications Located in Prevention of Significant Deterioration Areas
9VAC5-80-2000. Applicability, Permits for Major Stationary Sources and Major Modifications Locating in Nonattainment Areas

Asbestos Requirements

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

FUTURE APPLICABLE REQUIREMENTS

There are no known future applicable requirements for this facility.

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are available for public review.

PUBLIC PARTICIPATION

A public notice appeared in the *Galax Gazette* on January 25, 2017, announcing a 30-day public comment period for this permit. This public review is a concurrent review for the draft and proposed permit with the EPA. The public comment period extended until February 24, 2017. Notice was also provided to North Carolina, Tennessee, and West Virginia as affected states. No comments were received.